December, 1953

THE CHEMIST

VOLUME XXX NUMBER 12

DR. HILTON IRA JONES

Receives Chicago AIC Honor Scroll

(See page 564)

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Ohio Award to Dr. R. P. Dinsmore, F.A.I.C.

The Noiseless Foot of Time, Dr. R. P. Dinsmore, F.A.I.C.

What Is a Fellow? Dr. Ernest H. S. Van Someren, F. Inst. P.

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TO COME

The January issue will bring an article with the apt title of "The Noiseless Foot of Time," by Dr. Ray P. Dinsmore, F.A.I.C., who received the Ohio Award. Dr. Glenn A. Greathouse, F.A.I.C., Dr. Carl J. Wessel, F.A.I.C., and Bryson Fleer will tell us what the Prevention of Deterioration Center is doing. Roger Williams, Jr., M.A.I.C., will report on the present status and future possibilities of the field of Polyethylene.

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EDITORIAL

I Believe

John Kotrady, F.A.I.C.

Chairman, New Activities Committee, American Chemical Society, New York Section

NOWADAYS, up-to-date business organizations try to establish and maintain lines of communication open in all directions inside the company. Exactly the same sort of thing pertains to professional societies. In 1952, the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS and the New York Section of the American Chemical Society instituted a Liaison Committee at the local level, thus opening a new line of communication and finding out what members are thinking about on certain subjects. In our first attempt, a "Symposium on Public Relations for Chemists" was scheduled. Six well-known scientists spoke on public relations in their respective field of endeavor. In 1953, the subject was "How to Improve Your Technical Writing."

This liaison work is something new with us. It will be at its best, of course, if a variety of subjects akin to the objectives of both societies are discussed freely and with real enthusiasm. However, it will, undoubtedly, take on various forms depending on local or national interest, but certainly can include subjects and activities that will show members and non-members that not only is their professional society rendering valuable assistance on their behalf, but also that it demands responsibility and service on their own part. This is a difficult task in these days of "what's in it for me."

I believe that one of the major values which the liaison will offer to members of both societies is the opportunity to participate in movements to strengthen the profession and to improve the science it serves. The results of such work will be reaped by member and non-member alike. Yet, the member will get a little something extra — the thorough understanding of the problem that comes from facing it; the satisfaction that comes from helping to overcome difficulties, and the pleasure that comes from working with others in a mutual undertaking. The benefits which accrue to many come from unselfish acts. These intangible values will be great. In their flexibility and resourcefulness lies a member's best chances to use the full power of the combined experience and specializations of a professional society working in close liaison with another.

On Atomic Energy

PRESIDENT Work has directed the following memorandum to the chairman of the Joint Atomic Energy Committee:

"Atomic energy, developed at large expenditure for military purposes, has greatly increased our power to wage any war in which we may become involved. To reach full fruition and thus best to serve the Nation it needs to be extended into civilian applications. Granted the need for security, this can be obtained without restricting the progress that is now indicated. The stimulus of free enterprise would give incentive for great progress in the arts of peace. It would mean that more jobs would develop for individual initiative and our Nation would soon have a wealth of people with the knowledge to use this new force. This group, without substantial cost to our government, would be a source of strength in any future conflict. It has been so with other arts in the past, and there is no reason to believe that it would be different in this case.

The aid which government has given in the stimulation of private enterprise has been a real service to our Nation. The work of the Bureau of Mines in showing how resources may be developed has been important in fuel technology, in winning titanium as a metal, and in many other ways. The Department of Agriculture maintains Regional Laboratories and field service groups to give better use of our land and to show outlets for the products of the farms. Synthetic rubber and reclamation projects are other examples of government initiated projects which have been the foundation on which free enterprise has built to add to our standard of living. This list might be extended to many other agencies and bureaus of government. It is inherent in our national thinking, and the present administration concurs in this, that government stimulate new activities for industrial growth. With protection of the security element, the extension of atomic energy should be no different.

Confining this activity to government alone and thus inhibiting the potential that lies ahead would be a disservice to the Nation. It can adversely affect (a) the ability to wage future wars, (b) the growth of our technical professions, and (c) our standard of living in the days to come. A decision to encourage industrial participation in peace-time uses of atomic energy, with full security protection, is timely and important."

Formed: Robinette Research Laboratories, Inc., by Hillary Robinette, Jr., F.A.I.C., with offices and laboratories at 16 East Lancaster Ave., Ardmore, Pa. Mr. Robinette is president. George J. Volz is vice president and secretary, and also acts as laboratory manager. The new firm will provide production and process development for the textile, leather, paper and chemical industries, as well as technical and economic surveys of the chemical and chemical process industries. Mr. Robinette's consulting practice will continue as part of the business of Robinette Research Laboratories, Inc.

Changed: The name of Kolker Chemical Works, Inc., a subsidiary of Diamond Alkali Co., to Diamond Alkali Organic Chemicals Division, Inc. It has plants at Newark, N. J., and Houston, Texas.

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The Chemist—Friend or Foe

Dr. Hilton Ira Jones, F.A.I.C.

Managing Director, Hizone Research Laboratories, Wilmette, Illinois

(Excerpts from his acceptance address when the author received the Honor Scroll of the Chicago AIC Chapter.)

SOMETIME ago, Lord Haldane, Chief of the British Chemical Warfare service in the first World War, wrote that wonderful little book called, *Daedalus*, and in rebuttal Sir Bertrand Russell wrote his reply, *Icarus*. In *Daedalus*, science is pictured as that great force destined to soon bring mankind riches beyond the dreams of avarice, lifting us all into a new day when poverty shall vanish and the old world shall be made new. But in *Icarus* it is pointed out that science has given the world the potentialities whereby civilization, through ignorance, may destroy itself and is, indeed, almost certain to do so, and so science is the world's greatest menace.

Consider the gifts from the hands of science. For generations my ancestors have been students and they read their eyes out by the sputtering candlelights of the earlier days. That last Christmas my blessed mother ever spent with us, she brought up two of the old tallow dips and a pair of the old pewter family candlesticks. We lighted them on that last Christmas eve together, and what a light it was! It reminded me of nothing so much as Milton's description of the fires of Hell, "from which no light was gleaned, but only such as made the darkness visible." We stood it as long as we could and then I reached over my shoulder and touched a button, a magic button, given us by the hand of science, and snapped on three hundred watt bulbs in the Brascolite. Instantly we jumped fifty years. No wonder we call ours "the Age of Light!"

When my great grandfather came out of the Revolutionary War, he traded his farm at Lake Champlain for 400-acres of land in the wilds of western Pennsylvania. It took the family six months, in 1800, to make the trip out there. Today, an airplane will do it in two hours. My nephew was formerly manager of the Standard Oil Company in Madras, India, and he was not so far away from me in Wilmette as Lake Champlain was from Meadville, Pa., in 1800. Distance is actually measured by time. The real question is not, "How far is it?" but rather, "How long does it take you to get there?" Transportation and communication have made the world a neighborhood.

Diversity of language as well as civil wars have come from isolation.

Isolation breeds suspicion. Suspicion breeds hate and hate breeds war. We instinctively despise those whom we do not know. It is evident that this world must some day have an universal language. Be assured it will be the language of that nation which furnishes the best talkies and puts on the best radio and television programs. The little microphone will do more to usher in the Brotherhood of Man than all the pious preachments of the ages.

Consider the triumphs of modern medicine compared with the horrors of the 'good old days' when to amputate a leg was seventy-five per cent fatal. Who can measure the suffering of humanity before the discovery of ether and the other anesthetics? In the ancient land of the Incas, it was believed that severe headaches were caused by a demon inside the head. The medicine man therefore drilled a hole in the skull (trepanning) to permit the demon to escape. The unbearable agony incurred as the skull was drilled with a sharp stone was much lessened by having the victim chew cocoa leaves and their juice was also put into the wound as the drilling proceeded. In this way the use of cocaine was introduced as a local anesthetic. But the use of cocaine was sometimes fatal. Finally, it reached the hand of the modern chemist. He determined its molecular composition and then built up a new molecular arrangement by combining the potent portion with a harmless radical, thus removing the danger attendant upon its use. We call the compound "Novocaine" or "Procaine." This triumph illustrates how the chemist not only is able to duplicate nature but to "go her one better."

If you were to ask who next to Christ has been humanity's greatest benefactor, I should answer, Lord Lister. Though his work was based upon the discoveries of Pasteur, yet the fact remains that Lord Lister was the father of antiseptic surgery, the greatest physical blessing ever conferred upon man by chemistry.

From the dawn of recorded history, man has suffered from the strange disease, called in the Middle Ages, "Stroke of God", for when it struck a man it was fatal. Finally, the great English surgeon, Addison, discovered that the disease was caused by the atrophy of two little glands just above the kidneys. In his honor we now call it Addison's Disease. Soon it was proved that the administration of an extract made from these glands, taken from sheep or cattle, would prevent death from the disease. Finally, the chemist isolated the active principle of these glands and synthesized adrenalin. Precisely in this way thyroxin has been isolated from the thyroid gland and used to relieve cretinism. Similarly, Drs. McLeod and Banting of the University of Toronto have given the world insulin. Miracles like these are wrought

by the chemist in the field of modern medicine.

But the triumphs of chemistry in other fields than medicine are, if possible, still more remarkable. The most highly prized of all the ancient dyestuffs was the Royal Tyrian Purple. The world trade in this dye furnished the basis of the commerce of Tyre that carried the learning of the East to the barbarians of the West, and thereby all the history of the world was changed. The source of this dye was a vile-smelling, greenish pus sometimes found in the shell of a certain little mussel living only on the shores of the Eastern Mediterranean near Tyre. It often took 120,000 of these little shellfish to furnish one ounce of the precious dye. No wonder it was expensive. Then the chemist proved that Tyrian Purple is a brominated indigo. Finally, the Dow Chemical Company got to wondering how the little shellfish knew just where to place the bromine atoms in order to make the best dye; so chemists placed them in all the possible positions and found that the mussel was a poor chemist: other positions gave a much better shade and a faster dye! So now as Gilliland says, "The mussel suns serenely in its tepid Tyrian Sea," and we manufacture a better grade of Tyrian purple than ever dyed a robe for Solomon.

The magic hand of chemistry is found in every field that in any way touches human life, whether it be the color of your hair, the digestion of your food, the embalming of the dead, the shoes on your feet, the clothes you wear, the food you eat. It is making the old world new and giving us control over the forces of nature undreamed of in any other age. Surely then we must admit that chemistry is the greatest friend of mankind and easily it may be. But the sad thing is that chemistry in presenting the world with gifts and powers has increased man's mastery over the atomic forces much more rapidly than the home, the church, and the school have been able to increase his spiritual vision and the mastery of his own physical instincts and passions. The material gifts have been accepted much more rapidly than the spirit of science.

All are ready to accept the new mastery of nature and the gifts of chemistry but few are willing to be ruled by the gentle spirit of Pasteur. Science has given the dynamite to the baby without being able to make him understand the directions. Because of the failure of mankind to keep his morals on a par with his might, the chemist may easily become the world's greatest foe, in as much as chemistry has given civilization the power whereby it may easily destroy itself. Indeed, this very calamity can only be avoided, in my opinion, by keeping the world out of war.

The peace of the world rests in the last analysis not upon treaties or bat-

tleships. It must rest upon knowledge. As soon as men realize that war is no longer profitable for anyone and as soon as all the citizens realize that the recent advancements in modern chemistry are such as to make war international suicide, threatening the very existence of civilization and the life of the race, then we may begin to look for peace with confidence.

Let us examine a few of the scientific advances which have so completely revolutionized the character of war within the last few decades.

First in importance we must place the airplane. Although those peaceful bicycle makers in Dayton, Ohio, the Wright brothers, never had the remotest idea that the airplane would have a bearing on warfare, the fact remains that it is precisely the thing which has done most to scrap medieval military practice. It has given eyes to the army so that the old-fashioned scouting is as unnecessary as the secret movements of troops is impossible. Our stereoscopic cameras with new films make it possible to see and even photograph things in three dimensions and to take these pictures in almost complete darkness. Second, airplanes made possible the use of high-power explosives. In the artillery of the older days, the strength of the explosives had to be carefully adjusted to the strength of the gun. But in the case of the aerial bomb, explosives of any strength may be used, since it is the intention to explode the container and use the fragments as missiles. This practice opens up an entirely new field to the chemist in the production of high-power detonating explosives. Chemists have never before set themselves to the task of producing explosives of highest power. There was no demand for them, since before the airplane there was no way of using them. The demand for them has now come and the chemist will not be found wanting. Contrast the destruction of a single cannon ball with the explosion of one of our new H-bombs dropped on the same spot!

However, probably the greatest contribution that the airplane has made to the cause of peace is the elimination of the "front." With planes flying at 40,000 feet and at supersonic speeds there simply is no front in the old sense of the term. The whole country has become front and every man, woman, and child is a soldier, subject to all the dangers of war in his own home, especially since the recent feats of the airplane make it highly uncertain just what the effective fighting range may be.

Closely allied with this elimination of the front is the suddenness with which future wars will be precipitated. A nation with a few thousand bombing planes and an adequate supply of H-bombs could all but annihilate an enemy country within twenty-four hours. Even distance is no longer a protection. Read that

chapter in Stuart Chase's book, *Men and Machines*, that he calls, "The Two-Hour War." It pictures with scientific exactness the situation that every nation is today facing.

Airplanes and war gases were neither designed to be used with each other and yet no two things have ever been devised that worked together so perfectly. Everyone should understand that as the next war is to be an airplane war, as Gen. Mitchell died trying to tell us, just so war gases, H-bombs, and doubtless germs will constitute the active weapons. War gases constitute by far the most effective, the cheapest and the most humane weapon devised to date.

To be ideally suited as an instrument of war, the airplane must be modified in three directions, all of which have already passed the experimental stages. First, airplanes should be invisible. They say a fleet of such planes has already been launched in England. Several of our new plastics are as transparent as glass. They are also hard to pierce with a bullet.

Second, the airplane should be silent. This is already accomplished with the Maxim silencer. Finally, it should be radio-controlled. Thanks to the work of John Hayes-Hammond, Jr., of Gloucester, Mass., we may look upon this as an accomplished fact. We already have a system of radio-control so perfect that the planes may be handled as though manned by a pilot. Two other things that chemists can supply which will greatly add to the efficiency of planes are first, to furnish better and lighter metals or alloys. Beryllium, for example, has a specific gravity of 1.64 and an engine made of it would weigh practically one-seventh as much as one made of steel. Certain new alloys are ready to go into production. A still greater contribution by the chemist is the availability of far more powerful fuels. Just now a modified Sprengel gelatin (a solution of gun cotton in nitroglycerine) is being tried out. Suppose such a silent, invisible, radio-controlled airplane, carrying a load of H-bombs, were flying over a great city where they had the best of anti-aircraft guns, do you imagine they would shoot the thing down? Not if they had any sense! If they did, it would fall on them. As Gen. Mitchell pointed out, if you had anti-aircraft guns you would not use them and if you did, they would be only a curse; "there is no defense against an airplane except more airplanes."

When a nation goes to war, it will make use of every weapon available to win that war. The only way to prevent the use of every tool of war is by preventing war altogether. This, I believe, can be done.

Recently I attended the ACS meeting in Chicago, and as I sat listening to President Farrington Daniel's excellent address, I could not but realize that there was in that room the collective chemical knowledge of the

whole world. But at the same moment, I was appalled to consider the paucity of the influence which these same men exert on the political actions or military policies of our country. Conversation with many of these men convinced me that most of them are not interested in trying to further the advance of the public understanding of the role chemists are playing in altering the conditions of life in America or in instructing them in matters of national defense. This is another way of saying that they are but little interested in the status of the chemist as an individual. That is the reaason that so few relatively belong to the INSTITUTE.

Naturally, our status now is far better than it used to be even forty years ago. The first serious attempt to sell chemistry to the American public seems to have been started largely by Robert K. Duncan in the University of Kansas. His Industrial Fellowships led to the founding of the Mellon Institute, and his books, *The New Knowledge*, *The Chemistry of Commerce*, and *Some Chemical Problems of Today*, began it all. But his teaching inspired the Kansas school and gave us Cady, Whittaker, and especially Edwin Slosson, whose books, *Creative Chemistry*, *Major Prophets of Today*, *Chats on Science* and *Sermons of a Chemist*, did much to fan the flame. When later Slosson succeeded in interesting Scripps-Howard News Service in the establishment of Science News Service, the movement was definitely under way.

About twenty years ago, the *Rotarian* began the page called, "Peeps At Things to Come." The idea has been copied by magazines all over the country. Collectively they have been of considerable service in keeping America informed on the contributions chemistry has made to modern living. But as Slosson pointed out, the spoken word has many advantages over anything that can be written. Americans have come to have an almost an exaggerated feeling that science in general and chemistry in particular is a magical force that is able to readjust the molecules at pleasure and thus synthesize almost any product desired from Cortisone to the H-bomb. Such a campaign of information should be welcomed by all scientists, particularly the chemists and especially by the INSTITUTE, which is devoted to furthering the professional status of the chemist.

Chemists gave us the A-bomb which ended World War II. Now chemistry has presented us with the H-bomb which is as much stronger than the A-bomb as it was stronger then TNT. But the tales and adventures of Capt. Video and the interplanetary space rangers has confused our youth and many of our adults to the point that they are unable to distinguish between real fact and television fiction. Fortunately, however,

the serious word of science is generally accepted yet as something to be actually believed.

The chemist has been largely responsible for bringing America to our present position where the rest of the world fears our power. In this critical time we can be of great aid to our country, first by helping to provide the United States with the world's best weapons, and finally by combining to keep every one at home and abroad fully enlightened as to what we do have and how it will be used if any nation dares to attack us. The real way to be sure we will not have to fight is for all to realize that we have both the knowledge and the means not only to battle but to win.

Friend or Foe: We can be either. We must be Friend and tell our message to all mankind.

Hi Jones, the Teacher

Dr. R. C. Newton, F.A.I.C.

Vice President in Charge of Research, Swift & Company, Union Stock Yards, Chicago 9, Ill.

(A condensation of a talk presented at the October meeting of the Chicago Chapter when Dr. Jones received the Honor Scroll.)

DR. JONES is one of those rare individuals who can visualize the needs of man in modern society and then apply scientific knowledge to meet these needs. A man whose outstanding value is as an educator, yet who has the business ability to successfully meet a payroll and come out with a profit. A man whose scientific life spans the most rapid development of the physical welfare of mankind.

The phenomenal application of science for the benefit of man which we have seen unfold around us during the past fifty years was only a professional dream when H. I. Jones began his career. To be sure the handful of scientists of that day could see its potent force, but to the laymen it was, if anything, a hodgepodge of unpronounceable words. On the horizon at that time there were perhaps half a dozen men of science who could make themselves understood by the laymen. The general attitude of industry toward the use of science as a tool for progress was neither good nor bad — it simply did not exist on any measurable scale. This was before the time of Coolidge at General Electric; it was before the establishment of most of our chemical industry; it was before science took over in the petroleum field. The number of industrial research laboratories could be counted on your fingers, if anyone had thought it important enough to count them.

You will recall the address of Dr.

A. D. Little entitled, "The Fifth Estate", in which he said:

> "The world needs most a new tolerance, a new understanding, an appreciation of the knowledge now at hand. For these it can look nowhere with such confidence as to the member of the Fifth Estate. Let us, therefore, recognize the obligation we are under. Ours is the duty and the privilege to bring home to every man the wonders, the significance, and the underlying harmony of the world in which we live."

Contrast that picture of industry with the situation today where every industry is more competitive in research than in any other phase of its business. Each company president considers well the famous Kettering definition of research as that effort to determine what his company will do when it can no longer do what it is doing today.

Now what has brought about this change? What is responsible for this interest in things scientific? Why do our state and federal legislators dare to appropriate such vast sums of tax money to support scientific research? What has changed their attitude? You answer that science has demonstrated its value. But is that the cause or the effect of this new interest in things scientific? The answer lies in education. It was necessary to interpret this mysterious science in terms the layman could understand before it would be supported on a scale to allow a full demonstration of its worth.

Great revolutionary changes in human history do not just happen; they

—C & E N

Dr. Newton speaking

are the result of strategy born of dreams that inspire action. There were few real scientists in this country at the beginning of this century, and few of these had the inspired vision to see what it would mean if the public could understand the force of science in man's battle with the elements of nature. Of the few, fewer still possessed the ability to translate so difficult a subject to the uninitiated. Kennedy of Kansas and Schlossen, to name two, were feeling their way with deeds and words in an effort to awaken the intelligent laymen to the potentialities of science. Per-

haps no single effort was more effective than that of Schlossen when he convinced the Scripps-Howard people to create Science News Service. All that time, Kennedy was developing a pattern of industrial research and demonstrating its usefulness. These achievements served as an inspiration for others, notably a young man named Jones.

Let us examine this young man. At one stage of his life he settled for a time at a village on the Eastern seaboard where some one speaks only to someone else and they speak only to God . . . It soon became evident to him that he could never get recognition in that community on the basis of his own deeds but rather only from the position of his forebears. So with his usual flair for meeting problems, he dropped in to a library of genealogies. He knew that his father had been an energetic crusader who migrated to Kansas to help that state get into the ranks of a "free state" when slavery was the pressing problem of the day, and had stayed on to become U. S. marshall for Kansas, and that his grandfather was a minister who helped to found a great Protestant Church. A little more searching showed that he was a direct descendant of the Captain of the Mayflower. So he went to a friend and told his story. "Oh! my, don't let that get out, don't you know that the captain was a pirate who had no right to haul the pilgrims in the first place, and in the second place, he was supposed to put them ashore in Virginia, but instead put them out on the rocks to starve?" So back Jones went to look for more respectable ancestors. This time he came up with one who had founded the very village they were living in. "No," said his advisor, "Don't ever mention him, you see he was a real estate dealer who cheated the colonists in every conceivable way." This is where it might have ended had it not been for an uncle who engaged one of those professional genealogists. In no time, it became clear that Jones came directly from William the Conqueror and then right on back to Adam. You know who created Adam!

The U. S. Marshall, Addison Sprague Jones, of Kansas took his bride, nee Alice Nancy Hilton, to Minnesota, just in time to help quiet an Indian uprising. He settled on a farm at Mankato, the birthplace of Hilton Ira in 1882.

Hi Jones attended Parker College, and Drake University, doing graduate work at the University of Chicago and Harvard. He took his first job as science teacher at the Des Moines High School. It may seem strange that this little teaching job is so important to industrial progress across this great land, but it works out this way: He started on a teaching career that led to more advanced education: Miss Blanche Pinkerton said "Yes", and has been a constant

source of help and inspiration to him ever since!

Without H. I. Jones as an educator, the great work of the other evangelists of science would have made less progress. He moved on to graduate study and to college teaching where he has inspired thousands of students toward a better understanding of science and guided hundreds of them into science as a life work. This in itself might cause a man to look back on his life with the satisfaction of full accomplishment.

Young professor Jones at South Dakota State College soon became a popular figure on the campus, which resulted in much demand for his counsel in student affairs. Once at a pep rally before a football game, the call went up for Professor Jones. This popular young faculty member went to the platform. It is good that he did, not because it had the slightest effect on the outcome of the football game, but because there was in the room a Mr. Graham, who was manager of Redpath Bureau, sponsor of Chautauqua and Lyceum programs. Astute Mr. Graham saw the kind of lecturer he wanted for his program. So Jones began a series of lectures on science which lasted thirty-six years, in every state of the Union and most of the provinces of Canada.

Listen to this letter from J. B. George, director of the Goodwyn Institute, Memphis, Tenn., Free Public Lectures, Free Reference Library, addressed to The Redpath Bureau:

> "Dr. Hilton Ira Jones . . . appeared on our lecture program on March 2 and 3 (1948). Wednesday evening was the fourteenth time for Dr. Jones to appear on the lecture platform at Goodwyn Institute. According to the records that we have in my office, Dr. Jones holds the record here. He has appeared on lecture platforms more than any other man in the forty-one years this instiution has been offering lectures to the general public. Dr. Jones is truly a scientific speaker who has the popular touch."

It may seem odd that an organic chemist preparing for a public lecture should assemble his appartus and scientific facts from the physics laboratory, but this shows Dr. Jones' versatility. He knew that he must dramatize his lectures if he would awaken the interest of those who had no knowledge of science. The demonstration of high frequency electrical phenomena offered the most dramatic possibilities. It served as the "eye stopper" and "thought provoker" that opened the minds of his listeners to the profound subject of applied science. Never before had anyone been so successful in getting the message to the non-scientific public. He made numerous predictions of things to come in a way that fired the imagination. Many of these predictions have come true. In later years, Jones did use organic chemistry as his theme. Again he kept his audiences spell-bound with a description of things to be expected by way of new resins and plastics or new drugs.

But, if Dr. Jones proved to be a master in the field of adult education, he proved to be no less a genius in his classroom and laboratory guidance of younger minds. It was my privilege to take several of his courses and to serve as a student assistant in the chemistry department when he was its head. In any university, one can soon sense the difference between student effort directed at getting a passing mark and that engendered by the enthusiasm of genuine interest. I had ample opportunity to feel the enthusiasm which permeated his classes.

Dr. Jones is a religious man. It is doubtful that he could be catalogued as a man who cared particularly for the differences in creed that differentiate one church from another, but there is no doubt regarding his adherence to the fundamentals of Christianity. When he was professor and head of the departments of chemistry and chemical engineering at Oklahoma Agricultural and Mechanical College, he was asked to teach a Sunday School class to young adults. This was in an era when Sunday School was of waning popularity, and the class had shrunk almost out of existence. Under his enthusiastic leadership this class began to grow. When it reached two-hundred, they were forced to hold this class in the County Court Room while the church was enlarged to handle the crowd. Even the conversation of these young people throughout the week was about the discussions in their Sunday School class. This is the mark of a real leader.

Here are two examples where Dr. Jones has seen a need and met that need:

The first happened at Dakota Wesleyan University in 1913. In those days the farmers of the West were pioneers. No rural electrification. No parity price supports. No great farm organizations, and no special efforts to improve rural social conditions. It was a bold adventure then to attempt to arouse interest in this group. The record shows that H. I. Jones organized and was chairman of a two-day conference on rural life. The Governor of the state was on the program. Perhaps he was present for political strategy, but before the conference was over he was a most enthusiastic supporter. The following year he called a meeting of the Governors from which has sprung some of our most enlightened legislation and organized effort to improve rural social conditions. For this and other service, Dr. Jones has received an honorary Doctor of Science degree from that Institution.

The second illustration is in lighter vein. When at Oklahoma, Dr. Jones found a need to get faculty members together in a spirit of play to secure a more friendly attitude of cooperation on the campus. So he conceived and organized the first Chapter of the Order of the Red-Red Rose. He wrote its ritual of initiation; designed

its regalia with background of scientific apparatus. I believe it is still going, thirty years later, with chapters in a number of other institutions.

So we have a man who has earned the everlasting suport of his students as classroom lecturer and as counselor for their research problems. We have a scientist who has demonstrated his ability to apply his knowledge to the solution of practical problems. We have a man who can and is running a profitable business. A man who through thousands of public lectures has told the story of the value of science. A man who shares the credit for making America conscious of the value of science.

The Redpath Bureau has received trunks full of letters praising this man as an educator. Here is one such letter:

> "I believe in Chautauqua. If five days out of the six had been mental drivel, I would believe in Chautauqua on the strength of Hilton Ira Jones' scientific lectures. Here is a professor borrowed from his laboratory at the A & M College of Oklahoma.
>
> "Without a preachment he reaches the spiritual depths of everyone present. Without an appeal he makes every man eager to know more about earth and ether and mysteries of air.
>
> "Mr. Jones is the sort of man that you would like to have always; you would like to have him take an interest in your boy. You would like to have him as spokesman at the marriage feast. You would like to see him watch the clown in the circus, and you would like to bow your head with him in church. If you died, you would like to hear him say the fitting thing."

Presentation

Dr. Hilton Ira Jones, F.A.I.C., received the Honor Scroll of the Chicago AIC Chapter at a testimonial dinner of the Chicago Chapter, held October ninth, the Furniture Club of America, Chicago, Illinois.

Dr. Roy C. Newton, F.A.I.C., vice president in charge of research of Swift and Company a former student of Dr. Jones, spoke on "Hi Jones—the Teacher." Chester Gould, creator of Dick Tracy, presented a chalk-talk on "Hi Jones as I Know Him." Dr. L. T. Work, AIC president, presented the scroll to Dr. Jones, who responded with, "The Chemist — Friend or Foe."

Dr. Herbert F. Schwarz, chairman of the Chicago Chapter, announced that Dr. Jones had been selected to receive the Scroll because of his marked influence upon the profession of chemistry through his activities as a teacher, as a research director, as a noted lecturer, and as an organizer of and hard-working participant in scientific groups.

While at the University of Chicago, Dr. Jones assisted in organizing the Kent Chemical Society and was its first secretary. Subsequently he was instrumental in organizing the Oklahoma and South Dakota Academies of Science and the Oklahoma

and South Dakota Sections of the American Chemical Society. He served as chairman of the AIC Chicago Chapter in 1943-1945. During the summers of 1917-1934, he served as speaker on the Redpath Chautauqua circuits, and on a smaller scale this work continues.

Dr. Jones was born in Mankato, Minn., May 9, 1882. He received the A.B. degree from Parker College, the A.M. degree from Drake University, and the Ph.D. from the University of South Dakota. After teaching science in high schools for five years and working as a chemist for a pharmaceutical manufacturer, he became professor of chemistry at Dakota Wesleyan University. In 1918, he was appointed chairman of the department of chemistry at Oklahoma A & M College, and in 1922, he accepted the position of director of scientific research at the Redpath Bureau. Seven years later he became director of the division of education and research of the National Selected Morticians. Since 1934, he has been managing director of the Naselmo Corporation and its successor, Hizone Research Laboratories, Wilmette, Illinois.

Elected: An Honorary Member of The Chemical Metallurgical & Mining Society of South Africa, for the year ending June 30, 1954, Dr. Lincoln T. Work, AIC president.

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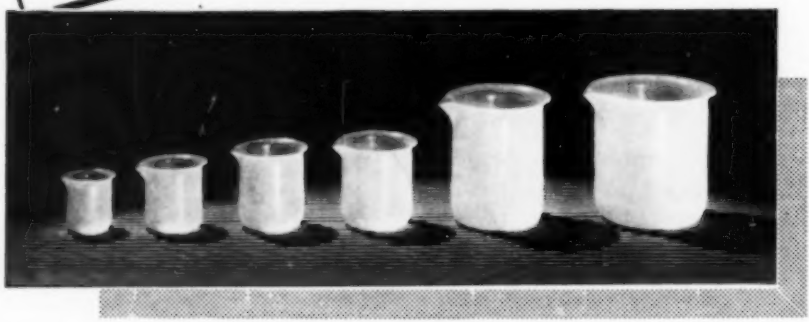

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Professional Problems for Members of the AIC to Resolve

Dr. Max Bender, F.A.I.C.

Member, Professional Affairs Committee, New Jersey AIC Chapter
Senior Research Chemist, Calco Chemical Division,
American Cyanamid Company, Bound Brook, N. J.

(The New Jersey AIC Chapter here suggests some professional problems that warrant the cooperative action of AIC members.)

IT IS well, periodically, to stop for a moment and take inventory of the activities and projects of a given organization. Such is the present discourse regarding THE AMERICAN INSTITUTE OF CHEMISTS.

Basically, the purpose of the AIC is to advance the chemist professionally. Besides serving as a medium where chemists meet to exchange mutual interests and ideas and to honor those scientists who have shown singular achievement, the INSTITUTE is so constituted as to provide a wonderful opportunity for chemists and chemical engineers to study and resolve professional problems.

The great widening of our chemical knowledge and concepts, the tremendous growth of our industry, the change in our philosophy of carrying out chemical activity, be it research, development, engineering or production, all bring about significant changes in the problems facing the chemist, and continuous re-evaluation of them is necessary. Some present day problems are listed below. The understanding of these could be extremely beneficial to industry and society in general, as well as to the chemist. The AIC is well qualified to study these problems from two points of view, (a) establishing their scope and importance, and (b) resolving them, if warranted. It is fortunate that the INSTITUTE is not limited by organizational charter restrictions from contributing a major share of the required effort. Its relatively small size and singularity of purpose also give it great flexibility of action to work independently or with other groups.

Chemical Talent

Is the best possible chemical talent being attracted to the chemical and chemical engineering curricula of our schools and colleges? Or do the more intelligent students aim for fields of activity that seems to offer more attractive earnings, prestige or security? This is an important problem because chemistry cannot continue to expand and grow unless high calibre men carry out its research and devel-

opment. The profession needs quality even more than quantity. To obtain qualified young people, it must offer more inducements than are apparent in the literature now being distributed to the schools and vocational advisers.

Moreover, among those chemists who have graduated, chemical talent is often lost when the more capable men in research try to gravitate to administrative positions to which they are lured by higher salaries and greater prestige. The whole future of a company may depend on its having brilliant men in the research department. Granted that technical direction is necessary for efficient research and development, yet talent is definitely required for devising and carrying out experiments because many important discoveries are made by eminent scientists directly involved with the experiments themselves. Actually, the employment of more high-calibre men in a laboratory can cut administrative overhead. There is a trend toward making research positions more attractive, but it must be greatly accelerated. AIC members should evaluate their own observations with respect to this problem, and at meetings decide what to do about it.

Morale

Often, the progress of laboratory research is tremendously hampered by individual frustrations due to many factors. Following are some of the important ones requiring consideration:

(a) *Research and Development Problems* in their layout and scope ought to correspond to the ability of the man. While challenging him, they should be, as much as possible, consistent with his usual type of approach, i.e., practical, theoretical, or a combination of both. Generally, a man trained in fundamental science will not relish cook-book formulation research. If the man is capable, the "scientific" approach is much more likely to bring desirable results. Naturally, the original goal must be kept in sight, and practical considerations must be included in the investigation.

It is necessary to be sure that a chemist is a match for the given problems and this should be ascertained mainly on the basis of personal interviews and his previous experiences, whether in the university or in industry. Psychological studies may or may not be of help in selecting the right man.

(b) *Proper Direction*, and this includes a judicious concept of how much to leave a man alone, is important. The director should be concerned with the assignment of problems, as has already been pointed out. He should guide the work subtly and help maintain a practical goal, while realizing that progress in the solution of the problem comes through full use of scientific knowledge. Meanwhile, he should remove obstacles and pro-

tect the man from interferences which tend to slow up the research. At the same time, the genuinely relevant problems should be kept in the foreground and the results made available as soon as possible to the authorities for whom carried out. Besides affording the best service to management, this also results in high morale in the laboratory, because there is little more important to a man than to have his work appreciated and utilized.

(c) *Cooperation* is a word that is used hundreds of times, but somehow there is doubt as to whether its true significance, namely, collective action for mutual profit or common benefit, is actually understood, let alone practiced to full extent. Modern activity demands effective cooperative effort on a much larger scale than in the past. The chemist must work in harmony with directors, colleagues, assistants, because it is only in this manner that all, including management and society, can get the most from his efforts. There is much more to be gained by employing the principle that two heads are better than one. Secretiveness and the fear of discussing results generally hurt progress much more than they protect a man, since they seriously hamper the accumulation of knowledge. Meanwhile there must be no hesitance in publicly giving a man due credit and acknowledgement.

Cooperation is a keyword in THE AMERICAN INSTITUTE OF CHEMISTS. Dr. M. L. Crossley, Hon. AIC, and past president, expressed this when he said, "We stand together in building a profession or we fall singly."

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(d) *The Training and Rounding Out* of a chemist should not stop when he leaves school. Nor should it be limited to his particular everyday problems. Rather, there must be continuous encouragement for him, while carrying out his responsibilities, to broaden himself and to keep up-to-date, first in his specific fields of endeavor; second, in chemistry and science in general; third, in accessory knowledge related to his present and future position; and finally, in cultural and general information. A continuous "push-me-pull-you" round of activity such as this will keep his interest at a high level and ideas will be everflowing. He will more readily maintain his self-respect and have high morale.

Much of this training and rounding out can be accomplished through the usual education facilities, including lecture series and special courses.

Meanwhile, participation in society activities, including attendance at meetings, hearing and giving papers, and committee work is highly desirable.

It happens often as not that as the chemist grows, he may reach a stage in his employment where there are no longer available opportunities commensurate with his ability and experience. Then he should be encouraged to make a move elsewhere, recommendations being freely given.

(e) *Earnings and Security* are important factors in a chemist's morale. Salary should be ample as with the other professions, occupations and highly skilled labor. It should increase proportionately with the man's experience and capabilities. The man engaged conscientiously in his work should not be faced with the fear of his employment terminating when he is in the later years of his career preceding the retirement age.

Poor salary, poor incentive and poor security conditions discourage young people from entering the profession and progress in chemistry suffers acordingly. Men in the profession cannot be expected to be ambitious when there is relatively little reward for hard work, accomplishment and experience. Circumstances like these encourage unionization in the profession as has been amply brought out by the editorial, "Unionism and the Engineers", in *Chemical & Engineering News* 31, 1957 (May 11, 1953).

(f) *Personality and Activities* of the chemist have been classified by individuals (who usually are not chemists) as "eccentric", "peculiar", "queer", etc. Also this is maneuvered around to the conclusion that a man must have such traits (introvert-subjective) in order to be a good chemist. Lest this discourage good men from entering the profession, it should be noted that no scientifically accurate data are available to support these contentions. After all, the "queerness" may only be the chemist's mental absorption in his work; or he may be strongly individualistic in his thinking so that he does not follow all the conventionalities of the present and past era. He could profitably give more attention to matters of public relations, through AIC discussions, to erase such impressions as have been created.

(g) *Working Conditions* influence the average man's productivity. Certainly he will be hampered by noise; lack of privacy; interruptions; distractions; abnormally high temperature and humidity; lack of facilities; lack of assistance in routine work and clean-up; and the burden of non-research, non-scientific detail. Necessary improvements may be expensive but this cost is likely to be quite small compared to the research investment and possibilities lost by not alleviating the poor conditions.

Chemical Education

Many facets of chemical education are being considered by the AIC Committee on Professional Education, headed by Dr. Harvey A. Neville, but three matters deserve consideration here.

First, there is the matter of inspiration in teaching. Inspired teachers can so arrange and conduct introductory courses that they maintain and build up the students' interest in chemistry.

Then, there are the cultural aspects of training that include writing and speaking, human relations, economics, psychology, sociology and international affairs.

Finally, vocational guidance advisers should be chosen carefully. They should be sagacious men, with both academic background and industrial experience, because the transition from academic life to industry is a great step. The student must anticipate his future in terms of his own actions and capabilities. If he understands the requirements for given positions in the terms of his own probable love and aptitude for the work, he can balance this with the salary, recognition and security that may be expected for the work. This evaluation would serve to minimize frustrations. The man would advance more rapidly and be of far greater value to his employer. This problem of adjustment is an important one for AIC members to study. Action through the INSTITUTE could help the chemist eventually to tie in his position more effectively with the laboratory, the institution, the community, society, his country, and even the world.

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The Chemist in the Public Eye

The achievements of the chemist (or scientist) are so significant to the welfare of society that the public must understand the chemist and his work more completely. Of course, general publicity pertaining to both the scientific and personal sides is a major step in this direction. However, the teaching of chemistry courses to non-chemists is also important. By arranging courses so as to emphasize not only elementary chemical theory but also the ways in which chemistry is linked to everyday living, the public is made to more readily understand the problems that confront the chemist and his method of attack.

Besides general appreciation, there are highly significant advantages to the chemist being in the public eye:

First, it becomes easier to sell the idea of the need for large scale fun-

damental research as a continual source of ideas which will have a practical significance to the progress of humanity.

Second, he has a greater voice in helping to resolve public situations where the chemical profession plays a part. For instance, there is the matter of the deferment of chemical talent in connection with the armed forces, bearing in mind the importance of technology to our defense preparations. Then, there is the question of integrity and the recognition of scientific findings apart from politics, of which the Astin case in the National Bureau of Standards is an example. Also there is the improvement of educational facilities. In this connection, the excellent work of Messrs. Amick, Joslin and Mackinney of the New Jersey AIC Chapter must be mentioned. These gentlemen were able, through proper contacts to effect noteworthy cuts in "red tape" so that it became possible for the people of New Jersey to vote yes on a worthwhile projected budget for improving the science facilities at the New Jersey State Teachers College, Montclair.

Third, he will be more readily accepted for his possibilities in contributing non-chemical services to society. For example, there is no reason why the chemist should not be invaluable in public affairs. His training in the application of logic to the solution of scientific problems and his greater ability to keep track of variables, of which there certainly are a great number in "politics", should stand him in good stead. Politics is a "branch of science" that seems to be sadly lacking in logically conducted and far-sighted processes. Chemists can be good leaders and administrators, as has been demonstrated by Chaim Weizmann and James B. Conant, Hon. AIC. And many an executive in chemical industry began his career as a chemist.

Thus, one can see that the "Avenues of Service" for the chemist are numerous. This was well pointed out by Bernard E. Schaar when he received the honor Scroll of the Chicago AIC Chapter. (See THE CHEMIST, February 1953).

Employment Advisory Service

Not infrequently, a chemist has started with a company believing his duties to be one thing, only to find an opposite situation. This difficulty is often due to lack of information about the organization that employed him. When a company considers hiring a man, it has available his complete record. It can also form a general impression of him through personal interview, and if it so desires, it can even give him a battery of psychological tests. The chemist, on the other hand, is generally not so fortunate. He usually cannot gain a thorough insight into the advantages or disadvantages of the position. All he has by way of information are the

generalities of the interview, the financial status of the company, and occasionally some outside opinions that may be biased. This situation could be corrected by an adequate employment service such as that conducted during the depression by the Chemist Advisory Council — a group sponsored by the AIC and other organizations, in which AIC members, Dr. W. T. Read, Dr. Frank G. Breyer, M. R. Bhagwat, and others, gave special attention to this problem as well as to employment generally.

A current step forward has been undertaken by the Chicago AIC Chapter. (See "An Employment Advisory Service II", by W. I. Harber, THE CHEMIST, Jan. 1953.) The underlying philosophy of this plan is to make readily available to the applicant the helpful advice of other members of the AIC. In operation, the applicant writes to the secretary, who sends him the names of AIC members qualified (i.e., working for or having worked for the organization in which the applicant is interested) to advise him. These advisers are then contacted by the applicant. A plan such as this has obvious advantages and, no doubt, it could be expanded to national scope.

It is seen from the resume of these chemical professional problems that there is much for the individual members, through the Chapters of the INSTITUTE to do. In many cases, these questions have to be further defined by obtaining more concrete information before constructive action can be formulated. No plan of action can be considered worthwhile unless it is of benefit to society and to the chemist's sponsors as well as to the chemist himself. The New Jersey AIC Chapter is definitely interested in the situation and has formed a professional affairs committee that will be active in these respects. Other Chapters should find these subjects of importance to them, because the "improvement of the professional and economic status of chemists lies with those who have the greatest stake in it — the chemists themselves. They can make the profession what they want it to be by concerted action through their professional organization, THE AMERICAN INSTITUTE OF CHEMISTS."

New Position: For Dr. Frederick A. Hessel, F.A.I.C., who has joined the Commercial Development Department of General Aniline & Film Corporation as commercial research manager. He will be responsible for market surveys and technical-economic evaluations of new products handled by the department of which Dr. Jesse Werner is the director. Dr. Hessel had been president of the Montclair Research Corporation since 1941. He received the Ph.D. degree from the University of Strasbourg in 1924.

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Some Things We Learned About Chemists

M. R. Bhagwat, F.A.I.C.

Formerly secretary and general manager of the Chemists' Advisory Council, now associated with Hooker Electrochemical Co., Niagara Falls, N. Y.

(A few provocative notes to incite thought, comment, or action on professional matters.)

WE INTERVIEWED approximately six-thousand men and women chemists through the Chemist Advisory Council and its predecessor group during the depression years, until the Council was suspended early in World War II. (1942). Out of these personal interviews and records certain characteristics of chemists manifested themselves. Some of these are indicated in the notes that follow.

The ethical standards of these chemists were high, but their feeling of belonging to and supporting a profession was undeveloped. They were concerned about their own individual problems, as is natural, but this interest for the most part did not extend to the problems of their colleagues. In this respect they seemed to lack social maturity. They applied to us as individuals, and with a few exceptions, quickly forgot the source of their assistance and other chemists, once they were put back into jobs. In this, these chemists did not differ from the public at large, which characteristically overlooks the source of benefits, nor is it too concerned with its fellows. This very human behavior, however, is modified when individuals become professionally conscious and work with and for each other.

The majority of chemists employed in industry, including many in government positions, are wage-earning, technically trained people, whether they hold the B.S. or Ph.D. degrees. Their daily routine is established to complete certain projects assigned to them. They rarely think of chemistry as a profession, but regard it as a job to be done, day by day. Therefore, they do not take enough interest in the chemical associations or societies, through which they could obtain the stimuli needed for their professional development.

Relatively only a few chemists, whether in the laboratory, the management group, or associated with universities, are professionally conscious. It is necesary that every man and woman employed as a chemist or chemical engineer be conscious of the dignity and responsibility of the profession, and that each have a spon-

taneous feeling of mutual helpfulness toward his colleagues. Only through such unity can chemists command the same respect that is given to medical men and lawyers, who above all are conscious of their professional positions.

Unless chemists do achieve professional unity, they cannot expect professional treatment from industry. The employer is established for business operation. He must use all his personnel, technical or otherwise, to operate the business as effectively as possible, lest there be no business to operate. Unless he realizes that chemists provide professional assistance, as does his legal staff, instead of regarding them merely as individuals who do certain things, as do technicians, he will consider the science of chemistry and the dignity of chemists as minor matters, if he thinks of them at all. This is why the average chemist is seldom sent by his company to attend meetings of the chemical socities to which he may belong. Every employer needs to know that the work of chemists is a starting point from which to build up his business and that he should, consequently, regard them as valuable professional assistance and encourage their professional activities, to benefit his business.

Education for professional thinking must start at the college level, as does that of the physician. The high moral values in human relations must be established in the minds of future members of the profession at an early stage in their education. Breadth of thinking and the realization of chemists' service to industry and to society must be inculcated along with chemical courses. The professional society may help those who failed to get this training, if they take advantage of its opportunities. The AIC was created to emphasize this phase of a chemist's life.

Chemists in general regard security of position important, especially in the later years of their employment. Often a fear of insecurity becomes a real hindrance to their best accomplishment. There are a few self-confident, fortunate chemists who do not regard security as important, but we are speaking of the average industrial chemist.

Chemists in industry often believe that those close to management, such as assistants to the manager, to the technical director, to the vice president; those in sales, economic studies, industrial relations are given better salaries than men in the laboratory, although they have the same degree of chemical training and experience. Therefore, they assume that "it is not what you know but whom you know," and they rightly feel that the extra knowledge acquired through laboratory experience should be

valued equally in research and development men as is the supplementary knowledge required to hold the non-laboratory positions. Where this situation exists, management may not be conscious of the importance of its research and development staff.

Chemists frequently need more courage, more self-confidence, and the recognition that their services are contributing to the good of the community and society, to inspire them to greater accomplishment. These things they can acquire through more discussions on problems concerning their profession in their societies, followed by constructive action. This will benefit not only chemists but it will have a profound, beneficial effect on the industrial development of the nation as well.

New Publication: *The GM Engineering Journal,* bi-monthly, published by General Motors Corporation, 1775 Broadway, New York, N.Y. The editor is Arvid F. Jouppi. Beginning with the June-July issue, it presents information about research and product engineering developments of GM, news items about GM engineering programs, and gives recognition to GM engineers and technicians for their technical developments. It is especially designed to assist college instructors and professors in supplementing classroom presentations.

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National Council Meetings

Meetings of the AIC National Council are scheduled to be held at The Chemists' Club, 52 East 41st St., New York, N. Y., at 6:00 p.m., on the following dates:

Jan. 13, 1954
Mar. 10, 1954
Apr. 14, 1954
May 12, 1954 — Asbury Park

AIC Activities

C. P. Neidig, F.A.I.C.

Ohio Chapter

Chairman, Dr. Norbert A. Lange
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Dinner of the Chemical Profession

The fifth annual dinner of The Chemical Profession in Cleveland, sponsored by the local sections of the American Chemical Society, Alpha Chi Sigma, the

American Institute of Chemical Engineers, the Electrochemical Society, and THE AMERICAN INSTITUTE OF CHEMISTS, was held November 11th, with more than four-hundred chemists and guests in attendance.

The feature address was given by Nobel Laureate, Prof. Harold C. Urey, of the Institute of Nuclear Studies, University of Chicago, on "Cosmic Chemical Engineering." Dr. Urey demonstrated the application of the disciplines and techniques of chemistry and chemical engineering in the study of the theories of the earth's origin, and emphasized the need of the chemists' cooperation with other sciences in determining the ultimate solution of this and other cosmological problems.

Four chemists were honored by their colleagues with the Cleveland Award for distinguished service to the chemical profession. The award recognized not only their personal scientific achievements, but especially their unselfish and persevering effort in promoting the effectiveness of the professional society which they have served. Dr. A. G. Bowers presented the certificates of merit to:

Gordon M. Juredine, F.A.I.C., research chemist with The Harshaw Chemical Company; past chairman of the Cleveland Section, American Chemical Society; active member of the AIC; former editor of *Isotopics*; who has served on the national council of both ACS and AIC, and who has been a leader in the fight for legal and professional recognition of chemists.

George W. Heise, for his scientific achievements in industrial electrochemistry and an elder statesman who encouraged and educated a great number of younger chemists to active service in the various chemical societies.

Raymond W. Erwin, for his thirty-six years of service, particularly in promoting the cooperation of chemical societies in civic activities, and who has done much to establish the prestige of the chemical profession in Cleveland.

Curry E. Ford, for active leadership in the American Institute of Chemical Engineers, and in committee work in promotion of the technical and civic responsibilities of chemical engineers.

On the Fifth Annual Dinner Committee, Harold M. Olson, F.A.I.C., was chairman and Edward G. Bobalek, F.A.I.C., served as secretary.

Will You Come

Dec. 1, 1953. Niagara Chapter. Speaker, Dr. Lincoln T. Work, "Safety, a Technical Approach to Gas and Vapor Explosions."

Dec. 3, 1953. New York Chapter. Joint meeting with American Chemical Society. Dinner at Carbide & Carbon Cafeteria, 30 East 42nd St., New York, N. Y. 5:45 p.m.; Program 7:30 p.m.; Question-and-Answer Period 8:30 p.m.; Refreshments, 9:00 p.m. Speaker: Robert Gunning of Robert Gunning Associates, Inc. "How to Improve Your Technical Writing."

Dec. 3, 1953. Pennsylvania Chapter. Penn-Sheraton Hotel, Philadelphia. Honor Scroll Award to Dr. Hugh W. Field, vice president and manager of research, Atlantic Refining Co. Speaker: Henderson Supplee, Jr., president, Atlantic Refining Co. Dr. L. T. Work will present the Scroll. Reception 6:30 p.m. Dinner, 7:15 p.m.

Dec. 8, 1953. Western Chapter. Rands Round Up, Los Angeles, Calif. Social Hour 6:00 p.m. Dinner 7:00. Speaker, Harry V. Welch, chief chemist and director, Western Precipitation Corp., "Our Diminishing Natural Resources — a Job for the Chemist."

Jan. 7, 1954. New York Chapter, "Young Chemists' Meeting." Ruppert's Brewery, 1639 - 3rd Ave. (91st St.), New York, N. Y. Tours will be available starting at 7:15 p.m. Meeting in Tap Room at 8:30 p.m. Speaker, Prof. Benjamin Harrow, chairman, Chemistry Dept. C.C.-N.Y., "Exploring the Frontiers of Chemistry." Beer and pretzels will be served. No charge, but notify S. Stigman, Foster D. Snell, Inc., 29 West 15th St., New York, N. Y. (WA 4-8800).

Jan. 19, 1954. New Jersey Chapter. Military Park Hotel, Newark, N. J. Dinner 6:30 p.m. Meeting 8:00 p.m. Speaker Dr. E. C. Easton, dean, College of Engineering, Rutgers University, "The Effect of Supply of Energy on World Civilization." The N. J. Chapter will be host for the 1954 AIC Annual Meeting, and General Chairman, David W. Young, will present a progress re-

port on plans for this event. Reservations: Dr. W. R. Sullivan, Hoffmann-La Roche, Inc., Nutley 10, N. J.

Mar. 4, 1954. New York Chapter. Student Award Meeting.

May 12, 13, 14, 1954. AIC Annual Meeting. Berkeley-Cartaret Hotel, Asbury Park, N. J. General Chairman, David W. Young. Treasurer, Dr. W. A. Raimond. Chairman of Registration, Chester A. Amick. Chairman of Publicity, Dr. D. L. Cottle. Chairman of Special Events, Dr. W. R. Sullivan. Chairman of Program Committee, Dr. Max Bender.

May 12, 13, 14, 1955. AIC Annual Meeting. Chicago, Illinois. The Chicago Chapter has appointed Clifford A. Hampel to initiate arrangements.

May, 1956. AIC Annual Meeting. Tentatively scheduled for Washington, D.C.

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By James B. Conant, Hon. AIC. Science in its relations with human problems. A series of four lectures. Columbia University Press. $2.25.

Profile of Science.
By Ritchie Calder. The atom, radar, penicillin and vitamins charmingly told in the "profile" style from the British point of view. Macmillan. $3.75

An Introduction to Scientific Research.
By E. Bright Wilson. The scientific method explained for research workers, especially emphasizing the treatment of data. McGraw-Hill Book Co. $3.50

The Chemical Revolution.
By Archibald & Nan Clow. Beginnings of British chemical industry before about 1870. Emphasizes economic consequences and causes. Blatchworth Press, London WC1. 50 shillings.

The Road to Abundance.
By Rosin & Eastman. How we may expect to overcome shortages. McGraw-Hill Book Co. $3.50

The Way of Science.
By John Somerville. An elementary view of science and the scientific method for young people. Schuman. $2.50

The Art of Scientific Investigation.
By W. I. B. Beveridge. A British view of the methods of science that is well-written and well-thought out to help anyone interested in research and creative thinking. Norton. $3.50

Chemistry — Key to Better Living.
Includes a history of the first 75-years of the ACS. The American Chemical Society. $4.00

Chymia
Annual studies in the history of chemistry. First Vol. 1948. University of Pennsylvania Press. About $4.00 a volume.

Source Book of Atomic Energy.
By Samuel Glasstone (A compendium of modern physics). D. Van Nostrand & Co. $2.90

From Euclid to Eddington.
By E. T. Whittaker. A most lucid exposition of modern physics. Cambridge University Press. $3.75.

The Genius of Industrial Research.
By D. H. Killeffer, F.A.I.C. Includes quotations from men in the industry. Reinhold Publishing Corp. $4.50.

Life, Its Nature and Origin.
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American Chemical Industry:
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"Diamond Neutral 50 Dairy Farm Cleaner." Pamphlet. Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

"Photographic Reproduction Cloth." Information. Peerless Photo Products, Inc., Shoreham, L.I., New York.

"Semi-Micro Centrifuge." Information. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Tygon Paint." Bulletin. U. S. Stoneware Co., Akron 9, Ohio.

"Treatment Of Cellulose And Cellulose Derivatives With Peroxygen Compounds." Bulletin No. 42. Becco Sales Corp., Buffalo 7, N. Y.

"Brady Self-adhesive Aisle Markings." Information and sample. W. H. Brady Co., 727 West Glendale Ave., Milwaukee, Wisc.

"Tests Rating Effectiveness of Soil Conditioners: Summarized." A report. Doane Agricultural Service, 5144 Delmar Blvd., St. Louis, Mo.

"Ortho Acid Emulsifier." Information. Fine Organics, Inc., 211 East 19th St., New York 3, N. Y.

"Plastolein 9057 Dioz." Technical Bulletin Number 47. Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio.

"Lifetime Incubators." Catalog 2. Chicago Surgical and Electrical Co., 217 N. Desplaines St., Chicago 6, Ill.

"Aerotex Syrup 250 Conc." Textile Finishing Bulletin 127. American Cyanamid Co., Textile Resin Dept., Bound Brook, N. J.

"Scientific Analysis of Flavor and Odor." Brochure. Evans Research and Development Corp., 250 East 43rd St., New York 17, N. Y.

"Cenco-Riverbank Frequency Standard." Information. Central Scientific Co., 1700 Irving Park Road, Chicago 13, Ill.

"Schmall Apparatus, for the determination of salts of organic bases and acids." Information. Scientific Glass Apparatus Co., Inc., Bloomfield, N. J.

"New 1½" Lightweight Self-Priming Pump." Bulletins No. 151 and 152. Carver Pump Company, Muscatine, Iowa.

"Gages, reflex and transparent." Information. Jerguson Gage & Valve Co. 80 Fellsway, Sommerville 45, Mass.

"Properties, application methods, and typical uses of Colmonoy No. 1 hard facing welding rod." Folder 102. Wall-Colmonoy Corp. 19345 John R. Street, Detroit 3, Mich.

"New Compound Repairs Concrete Floors." Information. The Hallemite Mfg. Co., 2446 West 25th St., Cleveland 13, Ohio.

"If You Can or Make Cans". Brochure. Wilkens-Anderson Co., 4525 Division St., Chicago 51, Ill.

"Eclipse Edge Plate Oil Filters." Information. Eclipse Fuel Engineering Co., Rockford, Ill.

How is the Class of 1948 Doing?

Illinois Institute of Technology surveyed its class of 1948 to find that the average graduate is twenty-nine years old, married, and has one or two children, and earns $6,340 a year. He started work after graduation at an annual salary of $3,180 and has bettered himself financially just about 100-per cent in five years.

Over-all, 96 per cent of the class earn more than $4,500 annually; 76 per cent earn more than $5,500; 46 per cent make more than $6,500; and 17 per cent are in the over-$7,500 bracket. The present age of the class ranges from 24 to 40 years. There was no discernible correlation between salary and age. There was a definite relationship between salary and family status. Those who had the greater number of dependents also had the larger salaries. Twenty-one per cent of the class were single with an average salary of $5,779.

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In furtherance of its charter purposes of benefitting the public welfare and national preparedness through science and engineering, Southwest Research Institute has inaugurated a program of summer employment for high school science teachers . . . In addition, members of the staff have advocated this plan in a number of communities throughout the Southwest.

—Louis Koenig, F.A.I.C., in *Tomorrow Through Research*, SRI, San Antonio 6, Texas

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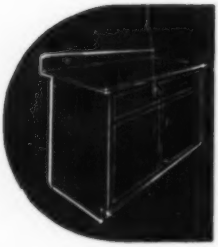

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No, the really great changes of the past — as of the future — stem from the creative ideas of men and women working in the laboratory, in the drafting room, and in the shop. And the management that ignores what goes on there is ignoring the real things that affect the future.

—Dr. Lee A. DuBridge in "Implications of Research and Technology to Management," American Management Association, General Management Series, No. 164.

New investment in chemical plants and equipment is soaring in Canada; the expansion of $121.8 million during the last year is twelve times that of 1945.

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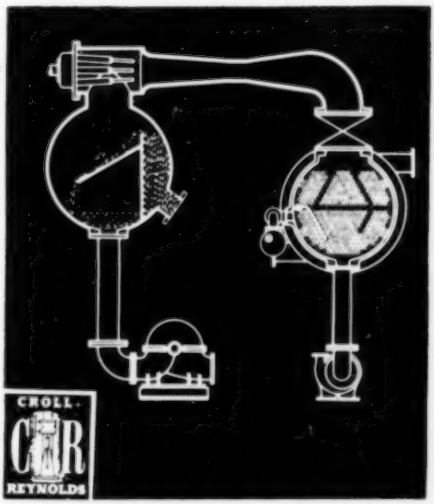

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CHICAGO 47, ILL.

To Formosa: Prof. R. Norris Shreve, F.A.I.C., of Purdue University, who left in November for his annual three months inspection of engineering education at Taiwan College of Engineering. In addition to his teaching and research duties, he is director of this project for Purdue. There is a team of Purdue professors on Formosa and a group of visiting professors from Formosa at Purdue. The object is to improve engineering education in such a way as to favorably effect the economy of the island.

Appointed: Dr. John J. Grebe, F.A.I.C., as director of nuclear research and development for the Dow Chemical Co., Midland, Mich. He has been a member of the Dow organization since 1924. He is a consultant to the Army Chemical Corps and a member of the Panel on Materials of the Research and Development Board for the Armed Services. He represents Dow in a joint study with the Detroit Edison Company and the AEC on development of a nuclear reactor to produce power.

At Christmas

There is nothing I can give you which you have not; but there is much that, while I cannot give, you can take.

No heaven can come to us unless our hearts find rest in it today. Take Heaven.

No peace lies in the future that is not hidden in the present. Take Peace.

The gloom of the world is but a shadow; behind it, yet within our reach, is joy. Take Joy.

And so, at this Christmas time, I greet you, with the prayer that for you, now and forever, the day breaks and the shadows flee away.

—Fra Giovanni
1513 A.D.

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